REMARKS

In accordance with the foregoing, the specification and claims 1 and 2 have been amended. Claims 1-6 are pending and under consideration. Claims 7-13 are withdrawn from further consideration as being drawn to a non-elected invention.

OBJECTIONS

At Office Action, item 4(a), page 2, the word "included" is objected to by the Examiner. By this amendment, the word "including" replaces all occurrences of "included" in the specification.

At Office Action, item 4(b), page 2, the words "polycrystallizing" and "decrystallizing" at page 13, line 11 are objected to for allegedly being "not correct." The Applicants respectfully disagree as these words are correctly used in describing the changes to the GeSbTe film.

At Office Action, item 5, page 3, the Examiner reminded the Applicants that the trademark "BLU-RAY DISC" should be capitalized. By this Amendment, the change has been entered.

CLAIM OBJECTIONS

At Office Action, item 6, page 3, claims 1 and 2 are objected to because of the word "included." With this Amendment, the Applicants replaced "included" with the word "including." Therefore, the claim objections should be withdrawn.

CLAIM REJECTION UNDER 35 U.S.C. §102

At Office Action, item 8, page 3, claim 1 was rejected as being anticipated by Otomo (JP 2000-011448) ("Otomo"). The Examiner alleges that Otomo discloses that "the base material layer 6" in Otomo is formed using the same plastic material as in "the substrate 2." The Examiner further argues that the specification of the application at page 9, line 20 to page 10, line 4 states that "the non-hydrophilic film is preferentially composed of the same types of resin that is in the biodegradable substrate layer." The Examiner then concludes that "the base material of Otomo is inherently a non-hydrophillic (hydrophobic)."

Applicants respectfully disagree with the Examiner that Otomo anticipates claim 1 for the following reasons.

First, claim 1 recites an optical disk comprising a substrate and a recording layer, wherein the substrate has "a biodegradable resin" or "a polyolefin resin," and the recording layer has a base material layer having "a non-hydrophilic film." The substrate has a minimal effect on the environment during disposal because a biodegradable resin can be decomposed by microbes, and a polyolefin resin can be disposed of by incineration (see Application page 7, lines 13-21). The use of a non-hydrophilic film as the base material in the recording layer helps with suppressing water absorption and moisture absorption and therefore prevents warping and other deformation of the optical disk (see Application page 3, lines 18-21)

In contrast, Otomo does not disclose the use of "a non-hydrophilic film" for a base material layer. Rather, Otomo only discloses the use of "degradable plastic materials" (Otomo, paragraph [0019]). Otomo further describes degradable plastic materials to include "polypropylene, polyvinyl alcohol, ..." that may be "disassembled by light and the microorganism" (see Otomo, paragraph [0009]). It is well known that "polyvinyl alcohol" is a hydrophilic material. Therefore, Otomo does not limit the materials for the base material layer to only "hydrophilic" materials. Claim 1 is different from the disclosure in Otomo because claim 1 recites "a non-hydrophilic film."

Second, the Examiner incorrectly asserted that the application has "proposed" the use of "polypropylene" (at Application page 8, line 8) and "BIONOLLE" (at Application page 8, line 4) as Otomo already has in paragraphs [0009] (Otomo) and [0010] (Otomo). Later, the Examiner concludes that the "non-hydrophilic film" in the application is "preferentially composed of the same types of resin that is in the biodegradable substrate layer."

When the specification of the application refers to "BIONOLLE," it is an example of a "biodegradable resin" for the substrate, not the base material in the recording layer (see Application page 7, lines 15-18, and the paragraph starting on page 7, line 22).

When the specification of the application refers to "polypropylene," it is an example of a "polyolefin resin" for the substrate that can be disposed of by incineration (see Application page 7, lines 15-18, and 19-21, and the paragraph starting on page 8, line 6). Again, it is for the substrate and not for the base material in the recording layer.

However, when the specification of the application describes the non-hydrophilic film for the base material in the recording layer, it refers to "[p]referable examples of non-hydrophilic film," including "polyolefin films" such as polypropylene (see Application page 9, lines 20-25).

The specification also refers to "biodegradable resin film" as "preferable for the non-hydrophilic film" such as those "biodegradable resins used for the aforementioned substrate" (see Application page 10, lines 1-4). The word "preferable" is directed to both the polyolefin films and the biodegradable resin films that are "non-hydrophilic." The Applicants would like to point out that the "non-hydrophilic film" is not equivalent to biodegradable resins.

It is clear that the base materials in the recording layer must be "non-hydrophilic" and they can come from either polyolefin films or biodegradable resin films. As the Examiner admits, Otomo's base material layer is "the same plastic material as the substrate." In comparison, the base material in claim 1 is "non-hydrophilic." Claim 1 is different from the disclosure in Otomo because claim 1 recites "a non-hydrophilic film" that uses either polyolefin film or biodegradable film, as long as they are "non-hydrophilic."

Third, the Examiner's assertion that "the base material layer of Otomo is inherently a non-hydrophilic layer (hydrophobic)" is in error. As discussed above, one of the degradable materials in Otomo is "polyvinyl alcohol," which is clearly hydrophilic. Furthermore, Applicants' non-hydrophilic film does not equate to the biodegradable substrate layer. The Examiner's apparent misunderstanding of the invention cannot become the basis to conclude that "the base material layer of Otomo is inherently a non-hydrophilic layer (hydrophobic)." Therefore, claim 1 is different from Otomo.

Therefore, the rejection of claim 1 as being anticipated by Otomo should be withdrawn.

CLAIM REJECTION UNDER 35 U.S.C. §103

(A) At Office Action, item 10, on page 5, claim 3 is rejected as being obvious over Otomo.

The Examiner asserts that Otomo allegedly teaches all the limitations of claim 1 except "the protective layer for protecting the recording layer." The Examiner concludes that it would have been obvious to one of ordinary skill in the art to "merely duplicate the base material layer 6 in order to provide extra water fastness and abrasion resistance."

Applicants respectfully disagree with the obviousness rejection over Otomo. As discussed above, claim 1 recites an optical disk comprising a substrate and a recording layer, wherein the recording layer has a base material layer having "a non-hydrophilic film."

In contrast, Otomo does not teach or suggest the use of a "non-hydrophilic film." In fact, Otomo's degradable plastic materials include examples such as polyvinyl alcohol, which is well known to be a hydrophilic material (Otomo, paragraph [0009]). Because Otomo does not make

a distinction between "hydrophilic" materials and "non-hydrophilic" materials, Otomo teaches away from claim 1. One of ordinary skill in the art would not have arrived at claim 1 by using Otomo as the basis of a modification. Therefore, Otomo is not obvious over claim 1. Claim 1 is patentable over Otomo.

Because claim 1 is shown to be patentable over Otomo, claim 3, which is dependent from claim 1, should also be patentable over Otomo. Therefore, the obviousness rejection of claim 3 over Otomo should be withdrawn.

(B) At Office Action, item 11, on page 5, claims 2 and 4 are rejected as being obvious over Otomo and Matsuishi et al. (U.S. Patent 5,972,457) ("Matsuishi").

The Examiner admits that Otomo fails to teach a printing layer provided on the opposite side of the substrate on which the recording layer is provided. However, the Examiner argues that making a dual-sided optical recording medium into a single-sided optical recording medium would not produce an unobvious result. Furthermore, the Examiner alleges that Matsuishi teaches a printable optical recording medium and an ink-receiving layer, and that the base material layer of Matsuishi intrinsically comprises a non-hydrophilic film. Therefore, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to use the protective layer and ink-receiving layers of Matsuishi in the optical disc of Otomo.

Applicants respectfully disagree with the obviousness rejection over Otomo and Matsuishi.

Claim 2 recites an optical disk comprising a substrate and a recording layer, wherein the substrate has "a biodegradable resin" or "a polyolefin resin," and the recording layer has a base material layer having "a non-hydrophilic film."

Similar to the discussion directed to claim 1, Otomo does not teach or suggest at least "a non-hydrophilic film" recited in claim 2. Therefore, claim 2 is not obvious over Otomo. Claim 4, being dependent from claim 2, is not obvious over Otomo.

Matsuishi teaches a printable optical recording medium which has a protective layer and an ink-receiving layer. Matsuishi also teaches that the protective layer "can also be combined with the ink-receiving layer" (Matsuishi, column 7, lines 25-30).

However, the Examiner uses the teachings in Matsuishi that:

(a) the ink-receiving layer can provide "water resistance" and "hardness" (Matsuishi, column 9, lines 45-51); and

(b) the polymers "having a higher hydrophobic property than those of the afore-mentioned hydrophilic polymers are preferably used" for the purpose of preventing ink-blur upon printing,

to draw the conclusion that the base material layer of Matsuishi "intrinsically comprises a non-hydrophilic (hydrophobic) film." This conclusion that Matsuishi comprises "a non-hydrophilic film" is in error for two reasons.

First, Matsui teaches the use of "hydrophilic," not "non-hydrophilic," materials for the protective layer or the ink-receiving layer. Matsuishi lists nine different aspects under the Summary of Invention (Matsuishi, column 3, line 29 to column 5, line 55) and all nine aspects teach the use of "a hydrophilic" filler or monomer. Therefore, the conclusion that Matsuishi "intrinsically comprises a non-hydrophilic film" is without basis.

Second, when Matsuishi refers to "higher hydrophobic property" of the polymers, it was in the context of preventing "ink-blur upon printing," and it is only in relation to "the afore-mentioned hydrophilic polymers." According to the examples of the polymers with "higher hydrophobic property than those afore-mentioned hydrophilic polymers," such as alkyl acrylate and alkyl methacrylate (Matsuishi, column 11, lines 22-45), it is well known that acrylates and methacrylates in general are water-soluble, and therefore, are still hydrophilic, although they may have "higher hydrophobic property" than other hydrophilic polymers.

Hypothetically, even if the conclusion that the base material layer of Matsuishi "intrinsically comprises a non-hydrophilic (hydrophobic) film" were correct, Matsuishi could not be used as a reference for an obviousness rejection. It is because the teachings in Matsuishi are directed to a protective layer and an ink-receiving layer, while claim 2 of the application is directed to, among other items, a base material layer including "a non-hydrophilic film" for the recording layer. One having ordinary skill in the art would not have been able to use Matsuishi, which only teaches about a protective layer and an ink-receiving layer, to arrive at a base material layer of a recording layer. Therefore, claims 2 and 4 are not obvious over Matsuishi.

When Otomo and Matsuishi are combined, the conclusion that "the protective layer and ink-receiving layers of Matsuishi" can be applied to the "optical disc of Otomo" is simply an error for the following reasons.

First, Otomo does not teach or suggest the use of "a non-hydrophilic film" in the base material for the recording layer. In fact, Otomo teaches away from using "a non-hydrophilic" material as discussed above.

Second, Matsuishi does not teach or suggest a base material in a recording layer. Matsuishi only teaches about a protective layer and an ink-receiving layer.

Third, Matsuishi does not teach or suggest the use of "non-hydrophilic" materials even in the protective and ink-receiving layers. The assumption that Matsuishi "intrinsically comprises a non-hydrophilic film" has been proven incorrect in the discussion above.

Therefore, when Otomo and Matsuishi are combined, one ordinary skill in the art would not have been able to arrive at claims 2 and 4. In the combination, there would not have been any teaching or suggestion to use "a non-hydrophilic film" for the base material in the recording layer.

As such, the obviousness rejection of claims 2 and 4 over Otomo and Matsuishi should be withdrawn.

(C) At Office Action, item 12, on page 8, claims 5 and 6 are rejected as being obvious over Otomo, Matsuishi, and Ota (JP 2000-030302) ("Ota").

The Examiner asserts that Otomo and Matsuishi allegedly render obvious all the limitations of claim 2, but admits that Otomo and Matsuishi "fail to disclose a release layer." The Examiner then concludes that because Ota teaches a device with a "release layer" between the recording layer and the substrate, it would have been obvious to one or ordinary skill in the art to incorporate the "release layer" according to Ota in between the substrate and recording layer of the medium of Otomo and Matsuishi.

Applicants respectfully disagree with this conclusion for several reasons. As noted above, Otomo and Matsuishi, alone or as a combination, do not teach or suggest at least "a non-hydrophilic film" for the base material in the recording layer. Therefore, claims 5 and 6 are not obvious over Otomo and Matsuishi.

In Ota, "a synthetic resin like polycarbonate is used for a substrate" (Ota, paragraph [0002]). In contrast, the application is about not using polycarbonate because bisphenol A is used as monomer, and as result, "materials containing bisphenol A have tended to be shunned" (see Application page 1, lines 10-21). Because Ota teaches away from claims 5 and 6, Ota

cannot be used as a reference for an obviousness rejection. Therefore, claims 5 and 6 are not obvious over Ota.

Because Otomo, Matsuishi and Ota, alone or as a combination, do not teach or suggest at least "a non-hydrophilic film" for the base material in the recording layer, claims 5 and 6 are not obvious over Otomo, Matsuishi and Ota. The rejection of claims 5 and 6 should be withdrawn.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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